

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Liang-Sheng Liao, et al

ORGANIC ELECTROLUMINESCENT DEVICES HAVING A STABILITY ENHANCING LAYER

Serial No. 10/713,523

Filed 14 November 2003

Commissioner for Patents P.O. Box 1450 Alexandria, VA. 22313-1450

Sir:

Group Art Unit: 2879

Examiner: Anne M. Hines

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Lebruary 14 2004

Declaration Under Rule 1.131

Liang-Sheng Liao states as follows:

I hold a Bachelor of Science Degree in Semiconductor Physics from Jiangxi University, 1982 (China), a Master of Science Degree in Semiconductor Physics from Nanjing University, 1988 (China) and a PhD Degree in Condensed Matter Physics from Nanjing University, 1996 (China).

I am the author of more than 50 technical publications, many of which are in the field of organic light emitting devices. I also hold 16 US patents.

I was employed by the Eastman Kodak Company in December of 2000 and have continuously worked in the field of light emitting devices since that time.

During my employment with Eastman Kodak Company, I worked with Kevin P. Klubek, and both Kevin and I are co-inventors in the above-identified invention and actually reduced the invention to practice as indicated below. Eastman Kodak Company is the Assignee of this application.

Prior to February 14, 2003, I received materials from Kevin P. Klubek and personally fabricated six organic light emitting devices. Two of these organic light emitting devices fully support the subject matter of claim 1 and are described in detail on page 18, line 3 through page 22, line 20 of the present application. Examples 4 and 5 of the present application represent data taken from an Electroluminescent testing system located in the Eastman Kodak Company's Research Laboratory in Rochester, New York.

Equipment in this system is specified in the first paragraph on page 19 of the present application.

Attached are sheets of data, which were prepared prior to the Boroson et al. filing date and show an actual reduction to practice. The dates on these sheets have been blanked out but these dates are all prior to the filing of the Boroson et al. application. The first sheet is entitled B1720. Device A corresponds to example 4 of the present application and Device D corresponds to example 5 of the present application. Both of these devices were reduced to practice.

The data sheet entitled 4 Quad Lum with Comments shows the data corresponding to example 4 in the present patent application (See row 3). The next sheet entitled 1D1 shows in data row 4, the data corresponding to example 5 in the present patent application.

After the devices were originally made and tested, Dustin Comfort, a technician in the Research Labs, conducted operational lifetime testing as is described on page 19, lines 6-7 of the present application. Fig. 4 of the present application shows the results of the testing conducted by Dustin Comfort. All of the data discussed herein, was stored in a share drive at the Research Laboratories prior to the filing date of the Boroson et al. application.

I am a named co-inventor in the Boroson et al. application. The text set forth in column 14, lines 11-45 of US Patent 6,824,950 was based solely on information provided by me and not by Michael Boroson.

The undersigned co-inventor declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 2/14/2006

Liang-Sheng Liao

6C Clintwood Drive

Rochester, New York 14620 USA

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Run Request Date:		Sample Label	<u> </u>			CC: FK	XIII	Elector Discipation
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		Thickness (A)	0.5 a \$ 0.5	0.5 0.5	d. C 0.5	0.5 0.5	0.5 0.5	ه.۲
		NPB	(Rate: 4.0A/s) /k/l/g///h/	4/18/			ll .	
		Thickness (A)	100 100 100	100	<u>\$</u>	18	100	\$4-6
Exp. Focus:		TBADN:TBP	(Host Rate: 4.0A/s) A/U//84 64//4	4 44/54/54 GA	Diport: 575-200	78		8:34
Stable blue emission		Total Thick.(A)	200 200 -> 200		82	90 <u>7</u>	200	
Dev. Config.: NPB(800)/Ag(0.5)/NPB(100)/	:5)/NPB(100)/	Dopant Thick.(A)	3 60 + 3	9	8	<u>~</u>		
TBADN:TBP(200)/Alg:LIBphen:LIMg:Ag	:LIMg:Ag	Dopant Rate (A/s)	90.0 5-5/217 90.00	90:00	90.0	9 6	, ,	
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4:

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Write Data File? Serial Port (0) K2400 GPIB Address Compliance Level No Kayle Yes 100 Efficacy (Im/W) 185 185 185 66 186 Run Time (sec) 350, 375, 400, 425, 450, 478 500 8 625, 550 4 515, 600 8 25, 650 675 470 8 755 750 77 Efficiency {Im/W} 1.02 1.37 1.25 1.01 Test Date Test Start Time Radiance Rad.Yield Peak WL Bandwidth Current {W/Sr/m^2} (W/A) {nm} {nm} {mA} 2.0 2.0 2.0 2.0 52 56 56 52 ell Size (cm/2) 100.0E-3 464 464 464 464 0.056 0.042 0.041 0.051 が形なでに 2.70 2.62 3.58 3.24 4 Quad Lum with Comments Wavelength (nm) (CT STD CELL LUM PROGRAM. (C/E) 0.207 0.212 0.208 0.211 Radiance (W/Sr/m/2) 0.134 0.142 ĆŒ) 0.134 0.143 3.30 Luminance Yield {cd/m^2} {cd/A} 2.49 2.42 3.01 484 498 661 603 Click To Accept ALL Comments 2 Voltage (VDC) >> Enter Panel ID >> 18 Characters Max 7.60 7.58 7.48 7.76 ACCEPT GOMMENTS Curr Density {mA/cm^2} Data File Pathname Quad 2 183 Quad 4 1A2 Quad 1 11B1 Quad 3 1A1 20 20 20 20 <u>ო</u>

4Quad-COM.vı Z:\Utilities\LabVIEW Tests\RDIO\4Quad-COM.vi

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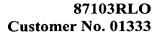
Page 1 PR Lum Series

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Serial Port (0) 0 K2400 GPIB Address Burden Resistance (14) PR Luminance Efficacy (Im/W) 169.6 168.5 167.8 167.2 Measure Fail Indicator 170.8 168.7 *Other Size (cm2) 2 0.000000 Series V4.0 6/2/00 JCBurtis Cel Current (mA) Run Time (sec) Test Start Time obace Burden (VDC) 476 Codes o Test Date < Enter << Panel Type <<</p> 52 Peak WavelengBandwidth (nm) 25 52 25 52 29 500 750 1000 1250 1500 1750 2000 2250 <u>က</u> ·8 ·5 5 8 **48** 464 28 464 2 464 log(B) / log(J) Cell Size (cm/2) \$ 10 But. 1.0 cd/A/J Im/W/B 8 (CIE 1931) ·B 0.185 0.185 0.190 0.189 0.187 0.184 0.5 성 100.00E-3 Standard Cell ළ (CIE 1831) 00 0.133 0.133 0.133 0.133 0.134 ଯ 9.13 8 <u>න</u>ු . 5 2.8 P 2.6 2.4 7.0 . გ 2.2-20.7 2.5 ر م <u>다</u> 4 _ Efficiency (Im/W) 4 φ ç 1.28 0.94 0.54 2.27 1.87 2.47 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 A STATE SALE SALE OF THE SALE 380 400 420 440 460 480 500 520 540 560 580 600 620 640 660 680 700 720 740 760 780 -42.5E-9 -15.00 (For Std Cell - 7.0) 0.048 0.039 0.054 0.057 0.054 -10.9E-9 -10.00 Vormalized Spectral Radiance - Max (Bik) & Min (Gray) 8 Radiance (W/Sr/m^2) 12.280 0.086 0.360 1.027 3.026 5.560 -12.2E-9 -5.00 101 Yleid Cod/A) 2.95 2.88 2.54 2.32 3.05 2.05 Reverse Bias Voltage Leakage Current 0 -- 0 3.0 2000 1500-8 - 85 8 Action of the second security amilias expresos paramentes Luminance (cd/m^2) 2047.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 507.9 929.8 173.0 14.7 61.1 Remote File Path ... Z: Data/RDIO Data/PRL3/EI >> Enter Panel ID >> Voltage (VDC) 3.74 11.87 4.85 6.22 4.23 7.77 Write Data File? SBA 医型型 ABS Ş Local Data File E:VPRL3(L) Starting Voltage | Bods voltage Statung edition | Bread III. Current Density (mA/cm^2) 100.0 20.0 40.0 2.0 6.0 0.5 Requested Current Density 00:004 1090H 1003053 9.9 8. 8.8 0.55 9.6 8.9 0.10 0.70 8 ğ 8 축 8

PR Lum Series . .0.vi Z:\Utilities\LabVIEW Tests\RDIO\PR Lum Series v4.0.vi

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Deborah Walczak

4 ebruary 14, 200

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Kevin P. Klubek states as follows:

I hold a Bachelor of Science Degree in Medicinal Chemistry from the University of Buffalo, 1996

I am the author of more than 31 technical publications, many of which are in the field of organic light emitting devices. I also hold 18 US patents.

I was employed by the Eastman Kodak Company in June of 1996 and have continuously worked in the field of light emitting devices since that time.

I work closely with Liang-Sheng Liao and have read his Declaration. I received the data cited by Dr. Liao in his Declaration prior to the filing date of the Boroson et al. application. I am a co-inventor on the present application. On knowledge and belief, the statements in Dr. Liao's Declaration are accurate and correct.

The undersigned co-inventor declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or

imprisonment, or both, under Section 1001 of title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 2 114 106

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